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Clean Air Strategy for Alberta

Report on the Regional Sessions

Volume I: *Moderator's Report*

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Report on the Regional Sessions

Volume I: *Moderator's Report*

This document is Volume I of the three-volume *Report on the Regional Sessions* and is the *Moderator's Report.* Volume II is the *Verbatim Transcript* of the public meetings. Volume III, parts one and two, are the *Written Submissions*. Part one is submissions from governments, industry and individuals and part two is from public interest groups and schools. Volume I has wide distribution and may be obtained at the address below. Volumes II and III, parts one and two, are on file at many public libraries for public access and for inter-library loan.

ISBN 0-86499-830-9
Pub. No. I/416
1990-91

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Vern Millard
Calgary, Alberta

April 26, 1991

Mr. Norm MacMurchy and Mr. Ken Smith
Co-Chairmen, Advisory Group
Clean Air Strategy for Alberta
Edmonton, Alberta

Dear Sirs:

I am pleased to submit to you and the Clean Air Strategy for Alberta Advisory Group my report on the eight Regional Sessions held in Alberta in November and December 1990.

This report is divided into several sections and includes: background information on the purpose and objectives of the Clean Air Strategy; an overview of the Clean Air Strategy consultative process; a discussion of and background information on air quality issues; a description of the Regional Sessions including analysis of the oral and written submissions and a discussion on public participation; analysis of the issues and problems identified by the public; and the options for reducing emissions identified by the public. Also included in the report are my personal observations on the Regional Sessions, which hopefully will be of use to the Advisory Group and the next stage of the Clean Air Strategy consultative process.

I wish to acknowledge the assistance of Cheryl Bradley and Susie Washington of Western Environmental and Social Trends in preparing this report.

I also wish to thank you and the Advisory Group for the opportunity to be a part of the Clean Air Stategy for Alberta, an initiative that is vitally important to Alberta's future.

Sincerely,

Vern Millard
Moderator, Regional Sessions
Clean Air Strategy for Alberta

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1. Introduction

There have been increasing concerns, both in Canada and around the world, about the environmental impacts of energy-related emissions from burning oil, gas and coal. Given the important role of the energy industry in the Alberta economy, these concerns have special significance for Albertans. In March 1990, the Ministers of Energy and Environment announced plans to develop a Clean Air Strategy for Alberta. Its purpose is to encourage public discussion about harmful emissions to the atmosphere from the production and use of energy in Alberta.

The Clean Air Strategy for Alberta has three objectives:

- to help identify and clarify the most important issues that need to be addressed in developing a Clean Air Strategy;
- to develop practical and achievable actions that can be taken by consumers and producers to reduce emissions; and
- to develop policy and program recommendations to present to the provincial government.

The Clean Air Strategy is being carried out in four phases, with public discussions and input encouraged throughout all phases.

Phase One — An Issues and Options Workshop was held in September 1990. Workshop participants included representatives of the various stakeholder groups — industry, environmentalists, government and individuals with a specialized knowledge or interest in these matters. Participants identified issues that need to be addressed, areas of uncertainty, short- and long-term priorities, options for action, and areas where more information and research are needed.

Phase Two — Regional sessions were initiated to provide Albertans with an opportunity to present their views at eight Alberta centres. This report summarizes the proceedings of the eight regional sessions, analyzes submissions presented during the public meetings as well as written submissions, and provides general observations about the recommendations.

Phase Three — A Summary Workshop is scheduled for September 1991, which will involve representatives of the various stakeholder groups. The purpose of the workshop is to review and synthesize information, identify strategies and make recommendations.

Phase Four — A final report will summarize the proceedings and recommendations identified in the three previous phases. It will be submitted to the Ministers of Energy and Environment for review and consideration by Cabinet.

2. Background On Air Quality Issues

A series of fact sheets to identify air quality issues was developed to help Albertans understand the magnitude of environmental and economic considerations in developing a Clean Air Strategy for Alberta. The fact sheets illustrate the growing concerns, both here and around the world, about the environmental impacts of energy-related emissions from burning fossil fuels – oil, gas and coal. On a global basis, these fuels supply about 80 per cent of the world's energy needs and their use is growing at an average rate of three per cent annually.

When fossil fuels are burned, they produce gaseous emissions of: sulphur oxides (SO_x), nitrogen oxides (NO_x), volatile organic compounds (VOCs), carbon dioxide (CO_2) and methane (CH_4). These emissions can result in acid deposition (commonly referred to as acid rain) which can damage lakes and soil or cause health problems, and also smog and ground-level ozone which can damage vegetation or cause health problems. In recent years, there has been growing evidence that energy-related emissions, as well as chlorofluorocarbons (CFCs), can cause a build-up of heat in the earth's atmosphere and contribute to what is called the greenhouse effect. Many scientists now suggest this build-up of man-made greenhouse gases will result in global warming and climate change. Furthermore, they say some energy-related emissions and CFCs are leading to depletion of stratospheric ozone, which shields the earth from harmful ultraviolet radiation.

Table 1 summarizes the relationship between energy-related emissions, chlorofluorocarbons and environmental concerns.

Table 1.

Gases Contributing to Environmental Issues

Gas	Issue			
	Greenhouse Effect	Acid Deposition	Smog[1]	Ozone Depletion[2]
Carbon Dioxide (CO_2)	●			
Sulphur Oxides (SO_x)		●		
Methane (CH_4)	●			●
Nitrogen Oxides (NO_x)	●	●	●	●
Volatile Organic Compounds (VOCs)			●	
Chlorofluorocarbons (CFC's)[3] & Halons	●			●
Ozone (O_3)	●		●	

[1] Includes Ground Level Ozone
[2] Stratospheric Ozone
[3] Not related to energy production or end-use.

Source: Clean Air Strategy for Alberta Overview Fact Sheet

Provincial Issues

The environmental impacts of energy-related emissions are particularly important to Albertans because the energy industry is a cornerstone of the province's economy, with Alberta being Canada's major producer of fossil fuels. About 75 per cent of the oil and gas produced in Alberta is consumed in other parts of Canada or in the United States. Similarly, 40 per cent of Alberta's coal production is delivered to external markets. Producing energy for consumers outside the province, coupled with Alberta's generation of electrical energy from coal, results in the highest Canadian per capita emission rates of carbon dioxide and nitrogen oxides , and the second highest per capita rate of sulphur oxides.

National Issues

While both Alberta and Canada have large per capita energy-related emissions, they contribute only a small portion to the total amount emitted worldwide. Thus regional and national concerns about air quality also need to be addressed on a global basis with concerted action taken by all nations. There is general agreement that to be effective, Alberta's response, as part of Canada's response, must be developed as part of international solutions and include ecological, economic and social impacts.

International Issues

International discussions have been ongoing for the last decade. In 1985, Canada signed a United Nations Economic Commission for Europe Protocol agreeing to a 50 per cent reduction in national sulphur dioxide emissions. In 1987, Canada signed the Montreal Protocol to reduce the use of chlorofluorocarbons; a complete phase-out of production and import is anticipated by the year 2000.

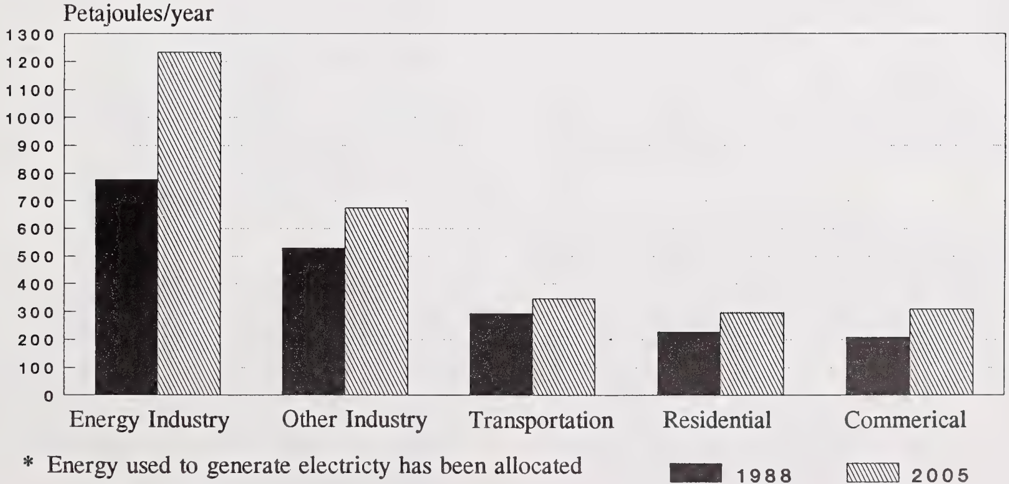
In 1988, Canada and 24 other countries signed a United Nations Protocol agreeing to freeze nitrogen oxide emissions at the 1987 level, and to accomplish this by 1994. In June 1988, it was recommended at the International Changing Atmosphere Conference held in Toronto that carbon dioxide emissions be reduced to 80 per cent of 1988 levels by the year 2005. At a conference in Bergen, Norway in early 1990, Canada committed to stabilizing emissions of carbon dioxide and other greenhouse gases at 1990 levels by the year 2000. This commitment is known as the Bergen Declaration. Canada's commitment was confirmed at the Second World Climate Conference in Geneva, Switzerland in 1990.

Given the regional, national and international implications of energy-related emissions, three important questions need to be addressed in developing a clean air strategy for Alberta:

- What are the air quality problems in the province?
- How will these international agreements affect Alberta?
- How can Alberta best meet its regional, national and international responsibilities in managing its air quality?

To illustrate the importance of these questions, Figure 1 shows the projected energy use in Alberta through to 2005 as estimated by the Energy Resources Conservation Board. Emissions of carbon dioxide and nitrogen oxides can be expected to parallel energy use. Therefore, pursuing "business as usual" would result in emissions increasing substantially rather than stabilizing at the agreed-upon levels. Compliance with the international protocols will require significant reduction in energy-related emissions which will have implications for all Albertans.

*Figure 1. Energy Use in Alberta – 1988 to 2005**



* Energy used to generate electricty has been allocated to each end-use sector.

Source: Energy Resources Conservation Board

3. Regional Sessions: A Description

The regional sessions provided an opportunity for Albertans to learn more about the Clean Air Strategy and the air quality issues that need to be addressed, as well as to ask questions and to make their views and recommendations known.

To help achieve province-wide participation, sessions were held in eight communities throughout Alberta:

Location:	*Date:*
Bonnyville	November 6
Fort McMurray	November 8
Peace River	November 13
Edmonton	November 16
Medicine Hat	November 28
Calgary	December 5
Red Deer	December 6
Pincher Creek	December 13

As a first step an extensive mailing list of individuals and groups with a special interest or involvement in air quality issues was compiled. An overview of the Clean Air Strategy for Alberta was sent to those on the mailing list with an invitation to continue receiving information on the Clean Air Strategy. About 5500 fact sheet packages were mailed to those who requested more information.

A province-wide advertising program was implemented to inform the public of the regional sessions. Three announcements were placed in the print media. The initial ad ran in all Alberta papers, both dailies and weeklies, and in the *Alberta Report* and *Macleans* magazines (see Appendix A). The ad stated the objectives of the Clean Air Strategy, announced that regional sessions would be held, and invited Albertans to ask for more information or to submit their ideas and suggestions. The second ad was placed in newspapers specific to the communities and surrounding areas where the regional sessions were scheduled. It ran twice – three weeks and one week before the regional session.

This announcement invited people to attend the open house and informed them how to register to give an oral presentation at the public meeting to be held in the evening.

In addition, notices were posted in communities where the sessions were to be held, announcing the time and place of the sessions and inviting people to attend and to make submissions. The regional session in Pincher Creek was rescheduled due to poor weather.

Open Houses

There were two components to each regional session – an open house and an evening public meeting. Open houses were held from noon to 5:30 p.m., with displays presenting information on energy and air quality issues. One display introduced visitors to the Clean Air Strategy for Alberta and provided background information on energy-related air quality issues. This display was also the welcoming and registration site. Fact sheets about the Clean Air Strategy for Alberta were available.

The other exhibits were provided by organizations with an active interest in the Clean Air Strategy. Representatives from many of the organizations were present to answer questions about the display material and energy and environmental issues. In addition, the Energy Bus from Alberta Energy and the Air Quality Monitoring Bus from Alberta Environment were present at each regional session for the public to view. All resource persons contributed greatly to the success of the sessions. Organizations with displays or display materials and the display themes are in Appendix B.

Public Meetings and Oral Presentations

Public meetings began at 7:00 p.m. Visitors were asked to register and were invited to look at the displays.

A brief overview of the Clean Air Strategy, including the objectives and process, and key problems, issues and options, was presented by the moderator at each session. Presentations were then heard from those individuals who had registered, followed by other presentations or comments from the floor. The oral presentations and discussion were transcribed by a court reporter and are Volume II of the *Report on the Regional Sessions.*

Questionnaire

A brief questionnaire was given to individuals when they registered for the open house and public meeting. They were asked to complete it before leaving, if possible, and return it to the registration desk. Questions were general in nature and asked for opinions on the type and importance of air quality problems, and what approach was preferred for dealing with the problems.

Written Submissions

Albertans who could not attend the regional sessions were invited to send written submissions to the Clean Air Strategy office. These submissions were also reviewed by the moderator. They make up Volume III of the *Report on the Regional Sessions*

School Program

In addition, Alberta teachers and students were encouraged to become involved with the Clean Air Strategy for Alberta. In particular, it was recognized that there was opportunity for the strategy to become a strong educational component in centres where the regional sessions were being held. To take advantage of this opportunity, Alberta Energy and Alberta Environment jointly developed a package of educational materials.

Letters were sent to the principals of all 1200 elementary, junior high and senior high schools in Alberta introducing them to the Clean Air Strategy for Alberta and providing them with the *Overview* fact sheet outlining the purpose of the Clean Air Strategy. Teachers were invited to call or write for more information on energy-related emissions, their effects, and what has been done so far to deal with these issues. About 300 requests from schools for complete fact sheet packages were received prior to the regional sessions.

A second letter, an invitation, was sent to about 200 schools in and near centres where the regional sessions were being held, providing the date and location of each session and inviting schools to attend the open house or make an oral or written presentation to the Clean Air Strategy for Alberta. The package of educational materials accompanied this letter.

In the week before many of the regional sessions, all junior and senior high schools in the centres where the sessions were being held were contacted by telephone to remind them of the sessions. The City of Calgary made special provision for school groups attending the open house to use public transit free of charge.

Classes attending the regional sessions were divided into groups of 10. Each group was given an introduction to the Clean Air Strategy and provided with a complete set of fact sheets. Students were encouraged to visit each display and to ask exhibitors questions about clean air issues. Some school groups came prepared with particular assignments to complete for school projects.

Exhibitors were advised to anticipate and be able to respond to questions from younger students. They also were encouraged to have display materials suitable for students. There was excellent response from exhibitors to both these requests.

Following the regional sessions, all schools in the province were sent letters notifying them that the package of educational materials was available from the Clean Air Strategy office. In addition, a list of resource people was developed and made available to schools requesting more information on specific topics.

4. Participation At Regional Sessions

Approximately 855 Albertans attended the regional sessions. This included 645 at the open houses and 210 at the public meetings. Appendix C shows the number of people attending each session in each community. Media were present at each session.

A total of 42 oral presentations were made. A list of presenters at each location is in Appendix D. Written submissions were received from 96 individuals or organizations (Appendix E). One hundred and two of the questionnaires distributed at the open houses and public meetings were completed and returned.

Summary of Issues by Location

Readers are reminded the verbatim transcripts of the Clean Air Strategy regional sessions public meetings make up Volume II of the *Report on the Regional Sessions*. A brief summary of major issues which were raised in each location follows.

Bonnyville

Although attendance at the Bonnyville session was low, there was wide-ranging and thoughtful discussion. Participants indicated there was no obvious clean air problem, such as smog or acid deposition, in Bonnyville. They saw the greenhouse effect as more of a global problem and generally did not know what role, if any, they could play in a solution for this problem. On the other hand, participants at the public meeting recognized that the reliance on automobiles – especially in urban centres – was a problem. Several participants stated a need for more information on air quality problems and on the need for research and incentives for alternative means of transportation.

Fort McMurray

Many Fort McMurray participants stated very clearly they had problems with the local air quality although there was explicit recognition of the importance of oil-sands production to the local economy. Emissions (sulphur oxides and particulates) from two oil-sands plants north of the city are believed to be the cause of odours and are thought to have negative effects on human health, forests, wildlife and the overall integrity of the ecosystem.

Representatives from the oil-sands industry stressed that future emission reductions be scientifically based. They also emphasised that the Clean Air Strategy recognize economic considerations in an emission reduction strategy. Members of the public expressed the concern that the monitoring of emissions by industry and the government has been inadequate, thus making the emissions database incomplete. There were requests for better and more access to existing monitoring information from industry representatives as well as the public. Some presenters proposed establishing a cap on emissions in the region.

It was proposed that this be done through a consultative process, perhaps using the local air quality task force that comprises representatives from local communities, industry and government.

Peace River

Several participants expressed concern about global warming and stated that Canada has a responsibility to help to solve this global problem. A local air quality concern that was raised involved toxic chlorinated organics from pulp mill sludge burned in hog fuel boilers at the Diashowa mill north of the town. Odours from the pulp mill were also mentioned as an irritant to local residents and questions were raised as to their impact on human health.

Suggestions were made that the government needs to provide more public information and education on air quality problems and possible solutions. It was strongly suggested by several residents that toxic emissions should be monitored and controlled more effectively. Other suggestions were for decision-making processes in which the public was consulted, which would include consideration of full economic, environmental and human health impacts. Improving energy efficiency for consumers was also seen as important.

Edmonton

Global warming was the air quality issue identified most frequently by Edmonton residents. The transportation sector and the energy industry, particularly oil sands plants, were identified as the principal sources of carbon dioxide and major contributors of man-made greenhouse gases. In addition, the transportation sector was identified as the major source of emissions contributing to periodic smog in Edmonton. The potential interaction of energy-related emissions with volatilized chlorinated organic compounds from effluent treatment streams related to bleached kraft mills was raised as an area of concern.

There were several solutions proposed including using synthetic oils; applying taxes on the end use of fossil fuels (e.g., a vehicle or gasoline tax); legislating stricter vehicle efficiency standards; funding more efforts to educate the public about what needs to be done to reduce emissions; and actively encouraging mass transit use. Participants also encouraged the government to pursue steps to increase energy efficiency and increase efforts to reduce, reuse, recycle and recover our resources. Research and development to reduce the scientific uncertainties and stimulate work in cogeneration and new emission reduction technologies were also suggested. Management of northern forests as carbon dioxide sinks was identified as a potential means to reduce the greenhouse effect. There were also calls for increasing partnerships with industry, environmental and other public interest groups, and the government.

Medicine Hat

Medicine Hat residents raised several local air quality concerns. These included toxic emissions from incinerators, especially from the Suffield Military Base, the Medicine Hat Hospital, and particulates from a local carbon black plant. They also stated concerns about aerial spraying of herbicides and pesticides, and ammonia fertilizers. Toxic substances in indoor air was another concern.

Residents suggested there was a need for better regional monitoring of air quality and for improved public access to monitoring data. As well, residents stated there was a need for more information on air quality problems and on the options for dealing with them. Increasing the use of alternative energy sources including solar, wind, alcohols and propane was proposed, as was developing cogeneration opportunities for industrial plants.

Calgary

There was wide-ranging discussion on all major air quality issues in Calgary. Climate change resulting from the greenhouse effect was frequently raised as an important air quality problem, as was smog in urban centres and acid deposition. The transportation sector and the energy industry, particularly oil sands and coal-fired power plants, were identified as the major sources of emissions contributing to air quality problems.

There were several calls for better province-wide monitoring and for ongoing research. Recovery of methane emissions in the energy industry and research into carbon dioxide injection technology were emphasized. Other suggestions included legislating stricter vehicle emissions and fuel efficiency standards, and instituting mandatory testing of vehicles for emissions. There also were calls for improved energy efficiency in building standards and for aggressive marketing of demand-side management services and for other types of load management by electric utilities. Several individuals cautioned against hasty and poorly planned action with respect to stabilizing or reducing carbon dioxide emissions, and they indicated this would likely have a serious impact on the Alberta economy.

Red Deer

The public meeting began with a series of skits by Grade 6 students who demonstrated the lifestyle changes required for implementing recycling, car pooling and household energy conservation.
A representative from an industrial plant near Red Deer outlined measures his company has taken to reduce emissions, including developing opportunities for cogeneration. Other individuals identified automobiles as a major source of emissions leading to local air quality problems and encouraged actions to reduce their use. Several people stated there is a need for better public information on potential solutions to

air quality problems. Others stated there is a need for including more information on energy and environmental issues in the school curriculum. Several of the participants stated that Canadians have a responsibility to reduce emissions, and as a first step they must learn to use energy more wisely.

Pincher Creek

Pincher Creek area residents raised the need for balancing economic and environmental considerations, and for taking a broad consultative approach to decision making. Concerns were raised about carbon dioxide emissions and the greenhouse effect and also about the impact of emission controls on the coal industry and hence the economy of the Crowsnest Pass. A presentation by students from a high school in Taber focused on required changes in individual lifestyles to reduce emissions, and proposed that non-polluting energy sources such as hydrogen by investigated. A representative from the Peigan Reserve spoke to the need for living in harmony with the environment. As well, there were suggestions for research and development of new emission-reduction technologies, management of forested lands and soils as carbon sinks, changes to electrical utilities pricing to encourage energy efficiency, and use of renewable sources of energy including wind and solar power.

5. Analysis of Written and Oral Submissions

Air Quality Problems Identified

The submissions – both oral and written – provided thoughtful commentary on many diverse air-quality issues. Readers are encouraged to review them more fully in Volume II of this report. Analysis of the submissions identified six major air quality problems. A summary of participants' views about specific air quality issues is provided in Appendix F, along with the number of times each item was raised.

Potential climate change resulting from accumulation of greenhouse gases was the air quality problem most frequently identified in both oral and written submissions. Albertans stated they are concerned about global warming and its implications. The energy industry, most notably oil sands and electrical generating plants, followed by the transportation sector were identified as the principal sources of greenhouse gases.

Acid deposition was the next most frequently identified air quality problem. The negative effects on human health, forests and lakes were mentioned as a significant concern. Acid rain was generally recognized to be a problem mainly in eastern Canada. Respondents cautioned, however, that acid deposition could become a problem in Alberta and a few presenters specifically mentioned that northeastern Alberta already is a problem area. They suggested that special attention is required to prevent further damage to this part of Alberta which is more sensitive to acid-forming emissions.

Smog in cities, specifically Edmonton and Calgary, was also identified as an air quality problem, with its odours, haze and possible negative effects on human health such as respiratory irritation. Nitrogen oxides and volatile organic compounds were recognized as contributing to this problem. Motor vehicles were seen as the major source of the emissions. Several participants went further and indicated that lifestyles are the root of this problem.

Stratospheric ozone depletion was recognized as an air quality problem with potential negative effects on humans and ecosystems from increased ultraviolet radiation. Chlorofluorocarbons and halons from aerosols and refrigerating units were identified as the major contributor to this and general support was expressed for reducing and eventually eliminating the release of CFCs and halons to the atmosphere.

Although it was clearly identified that this first stage of the Clean Air Strategy for Alberta was intended to focus on emissions from the production and use of energy, Albertans also expressed concern about air toxics. Air toxics and their effects on human health appear to be an emerging air quality problem. Specific toxic compounds mentioned were dioxins, furans and chlorinated organics (e.g., PCBs) in general.

Sources identified were incinerators, pulp mills and asphalt plants. Toxics in indoor air also were mentioned in five submissions.

Other more generic issues relating to air quality also were raised in the submissions. Both industry and representatives from the public stated the current approach to monitoring is inadequate and expressed a need for better monitoring approaches. As well, industrial groups and individuals raised concerns that while the public says they want a clean environment, they do not appear to take ownership of air quality problems. And they stated there is a lack of public information and education about various contributors to air quality problems and options for reducing emissions.

Industrial submissions were concerned about scientific uncertainties and recommended that environmental protection goals and measures must be well defined and based on sound scientific information. Industrial submissions also mentioned that a new approach to managing air quality in the province must consider the global nature of energy markets and the need to keep Alberta competitive.

Many public representatives expressed a desire for stricter enforcement of air quality standards. Many submissions stated the existing enforcement practices were inadequate and fines too low to cover the costs of clean-up.

Finally, most participants stated that the problems caused by emissions from energy production and use could be resolved by reducing the amount of gases emitted. Many submissions commented on specific policies and/or initiatives that could lead to reduced emissions through reduced energy use or other means.

Options for Reducing Emissions

Albertans proposed a wide range of options for reducing emissions. Sixty-five options that were identified in written submissions and oral presentations are shown in the box opposite. They are grouped under six main categories: reduce energy end-use demand; increase energy efficiency; substitute fuels with lower emissions; increase emission control and recovery; increase renewable energy use; and reduce energy production. In each category, the options are listed in decreasing order of frequency according to how often they were mentioned. The number of recommendations supporting each option is listed to the right. These provide an indication of the relative weighting of certain options in the submissions. Some options proposed were general, others specific. For this reason, several of the options listed overlap and are not mutually exclusive.

Suggestions for Managing Air Quality

There were a significant number of recommendations put forward in the submissions with respect to how the province could better manage air quality. While some respondents emphasized specific options to reduce emissions, others focused on the need for general principles. Many of these suggestions related to the need for clearly articulated principles for defining air quality objectives and for establishing management approaches to achieving reduced emissions.

Principles

Several submissions, particularly those from industry associations, recommended that in setting air quality objectives, the following principles should be adhered to:

- consult with affected and interested public in defining the problems and potential solutions;
- base decisions on sound scientific information regarding emissions and their environmental and health impacts;
- encourage research in areas where there are information gaps or uncertainties (e.g., air quality models, climate models, environmental health effects), and where advances in emission reduction technologies are most promising;
- base decisions on full accounting of economic costs and benefits, including effects on industry competitiveness;
- use risk assessment and management principles to deal with uncertainties;
- cooperate with other provinces in setting regional air quality objectives and with the federal government in national objectives, and with other countries in international objectives; and
- use a mix of management approaches which includes stricter regulations and market-based incentives to encourage activities that reduce emissions.

Options for Reducing Emissions

Options	*Times Mentioned*
Reduce energy end-use demand	
increase use of public transit to replace private transportation	24
increase energy conservation in buildings (lights off, thermostat down)	16
tax fossil fuels (end-use)	14
increase car pooling	11
increase use of bicycles	9
implement a green tax on consumer products	9
reduce, reuse, recycle consumer products	7
implement gas guzzler surcharges and/or rebates for fuel-efficient vehicles	4
design urban areas to require less travel	4
use electronic meetings to reduce travel	2
increase parking fees	1
increase licence fees for more than one vehicle	1
Increase energy efficiency	
implement programs and legislation to increase energy efficiency	30
develop opportunities for cogeneration	18
implement stricter vehicle fuel efficiency standards	16
improve energy efficiency in buildings (heat exchangers, reduced lighting levels, solar design)	16
alter electricity pricing structures to encourage efficiency	11
improve efficiency standards for appliances and motors	9
have government set example through energy efficiency in its operations and procurement policies	9
gather flared gas for cogeneration	6
increase energy efficiency audits	5
harmonize energy efficiency legislation across Canada	2
generate electricity more efficiently	2
Substitute fuels with lower emissions	
use natural gas instead of gasoline for motor vehicles	10
use propane instead of gasoline for motor vehicles	7
increase the use of natural gas rather than coal for generation of electric energy	5
use nuclear energy instead of coal for electricity generation	1
use synthetic motor oil	1
Increase emission control and recovery	
improve emission standards including vehicle exhaust	24
increase monitoring of emissions and expand to include methane and toxics	22
research and develop new emission reduction technologies	21
enforce air quality standards more strictly	18
manage forests as carbon sinks by reducing clear-cutting and planting more trees	13
establish airshed or regional limits (emission caps)	13
apply present agreement for stabilization of CO_2 emissions (seven suggest moving to 20 per cent reduction)	11
monitor ambient air quality in regional airsheds	9
recognize or make concessions to companies that make significant reductions or perform better than standards require	7
provide emission reduction technologies to other countries	7
consider use of tradeable emissions permits	6
make monitoring information more available to the public	6
collect, recycle and destroy CFCs	5
meet NO_x reduction agreements	5
adopt polluter pays principle	5
encourage development of clean coal technology	4
monitor sensitive areas	4
require use of best available technology	4
encourage voluntary compliance with emissions standards and flexible responses	4
implement higher fines or penalties	3
consider out-of-province emission sources	3
meet SO_2 reduction agreements	3
consider cumulative effects of emissions	2
better response to public complaints	2
manage forested lands as carbon sinks	1
adopt zero emissions goals	1
Increase renewable energy use	
research, develop and encourage use of solar energy	15
research, develop and encourage use of wind energy	12
research, develop and encourage use of alcohols (ethanol, methanol)	10
research and develop the use of hydrogen	8
establish economic level playing field for renewable resourcesuse small-scale hydro electric energy development	5
use small-scale hydro electricity energy development	3
use large-scale hydro electric energy development	1
research, develop and encourage use of geothermal energy	1
establish institute of renewable energy	1
Reduce energy production	
No one specifically suggested reducing energy production.	

Approaches

In reviewing the many proposed management options suggested in the submissions, three key approaches emerged. These are:

- encourage voluntary action by individuals and industry through information and education;
- establish stricter standards through legislation; and
- use economic tools or approaches.

Encouraging voluntary action through information and education was the approach mentioned most frequently. Many submissions stated that lifestyle changes by the general public would be required, and that the public must be provided with credible, balanced information on how they contribute to air quality problems and the options available to them to contribute to the solutions. It was proposed this be accomplished through the electronic and print media as well as through formal education systems. Institutional changes in corporations and organizations recommended in the submissions, which included the following:

- adopting environmental policy statements;
- implementing environmental and energy-efficiency audits;
- considering environment in decisions; and
- directing a greater proportion of budgets or profits to protecting or cleaning up the environment.

Legislating stricter standards was the second most frequently suggested approach. Recommendations included revising the following:

- emissions standards for industrial plants;
- vehicle efficiency and emission standards;
- appliance and motor efficiency standards; and
- building code standards.

Combined with proposals for stricter standards were recommendations for better monitoring (testing) approaches and for stricter enforcement, including higher fines and penalties.

Economic instruments which would encourage emission reduction through market forces were also proposed in some submissions, especially from industry. Economic instruments proposed were as follows:

- incentives and subsidies to encourage energy efficiency, switching to less polluting fuels, and environmental upgrading and clean-up;
- taxes on fossil fuel end-use and on inefficient vehicles and appliances, with increased revenues directed to protecting or cleaning up the environment; and
- tradeable emissions permits combined with regional or sectoral emission limits or ceilings.

Analysis of Questionnaires

One hundred and two questionnaires were completed. Detailed results are in Appendix G. The questionnaires were not designed to constitute a valid statistical survey of Albertans' attitudes regarding clean air. The questionnaires were intended to obtain a rough gauge of the opinions of people who attended the sessions.

More than 80 per cent of respondents felt that clean air is one of the top priorities for Alberta. All four clean air issues listed – greenhouse effect (climate change), acid deposition, smog and stratospheric ozone depletion – were considered to be very to extremely important by more than 70 per cent of respondents. Stratospheric ozone depletion received the greatest attention, with greenhouse effect second, acid deposition third and smog last.

There were five approaches provided in the questionnaire that could be used to ensure clean air. The approach receiving the most support was to encourage measures that are economic in their own right, such as energy efficiency. There was also high support for encouraging more research into the study and understanding of air quality. There was also moderate-to-high support from about 90 per cent of the respondents for the two remaining measures: 1) encouraging voluntary action through more information and education; and 2) making measures mandatory by more strictly enforcing existing laws and by passing new laws. The approach which received the least support was the use of taxes, economic incentives (subsidies, emissions trading, tax credits) and economic penalties.

In the comments section at the end of the questionnaire, most respondents focused on means for reducing emissions from transportation and large industry, promoting renewable energy and the need for more education about clean air issues. Several comments were also made about the need for recycling.

6. Moderator's Observations

The issue of clean air has received considerable attention in the media in recent years, as has the need for The Province of Alberta to develop a clean air strategy. The regional sessions provided an opportunity for Albertans to express their views about these subjects and make suggestions on how to ensure clean air for the future. The sessions, therefore, provided an insight into how Albertans react to both the question of clean air and the need for a strategy. A review of the regional participation and discussions has produced the following general observations about the public's perception of these issues.

a) *The public does not appear to place the issue high on its priority list.* Despite media reports on issues such as global warming and an extensive advertising program about the Clean Air Strategy for Alberta, the average public meeting attracted only 25 persons and five submissions. Clearly, that level of participation does not indicate Albertans have great concern about air quality in the province. On the other hand, those people who did attend the regional sessions were deeply concerned about air quality issues and appreciated the opportunity to have input into government policy making. While there may be many reasons for the low attendance, such as inclement weather, the lack of broad public interest indicates a need for targeted long-term action if new approaches in how air quality is managed are to be successful.

How can greater interest be created to achieve more public involvement? Many participants proposed providing the public with more information and education about long-term issues, such as global warming, and about how people contribute to both the problem and its solution. Others identified the need for information about the state of Alberta's air quality. Implicit in these recommendations is the assumption that until the Alberta public accepts that global warming, acid deposition and urban smog are real problems that require action, recommendations that depend on changes in energy use and lifestyle will have a limited chance of success.

b) *Participation by students was significant and encouraging.* The Clean Air Strategy for Alberta made a special effort to encourage participation by schools. Classes visited the open house displays in five regional sessions and made presentations at two public meetings. The presentations were effective and indicated a good understanding of the issues. A side benefit was the attendance and involvement by parents at the two regional sessions. In total, students accounted for about one-half of the attendance at the regional sessions.

Additionally, 46 written submissions were received from students representing six different schools. These were generally in the form of letters addressed to the Minister of Energy and/or the Minister of Environment. Many students expressed concern about the probable state of the environment when they grow up and the need to take action now to ensure clean air in the future.

The experience gained from the regional sessions suggests that working through schools would be an effective way to involve the public in developing environmental policies, and should be used to a greater extent in the future. It also reaffirms the importance of integrating environmental education with the school curricula.

c) *Respondents proposed a comprehensive list of options to reduce emissions.* Although participation was limited, more than 65 options were proposed to reduce emissions. The recommendations most frequently made included measures that would reduce the end use of energy, with the greatest emphasis being on increased use of public transport. Conservation measures such as turning down the thermostat were also frequently made. Albertans also emphasized using energy more efficiently as a means of reducing emissions. They also called for the adoption of more stringent emission standards.

Indeed, the recommendations from the regional sessions closely paralleled those developed at the Issues and Options Workshop in September 1990. The latter recommendations are being evaluated through the Clean Air Strategy for Alberta process to test their effectiveness in reducing emissions, and to assess the benefits gained versus the costs incurred. As a note of caution, there is little evidence to suggest that Albertans generally understand the socio-economic implications of the proposed list of options and what it could mean for their lifestyles. At some point the Alberta public will need to be informed about the choices they will need to make regarding available options to reduce emissions.

d) *Industry endorses the participation of all stakeholders in developing a clean air strategy.* Industry played a key role in providing information for the public at the regional open houses. Many of their written submissions emphasized the need for full participation by all stakeholders in defining problems and establishing programs for improvement. They also advocated making environmental information accessible to all parties.

This cooperative and consultative approach augurs well for the development of an effective clean air strategy. It suggests that industry sees itself as part of the problem and part of the solution – one of the stakeholders with an important role to play.

e) *There is a need to address local air quality problems.* Although the participants generally indicated that Alberta has clean air, some local air quality problems were identified. For example, local residents are concerned about the emissions from oil sands plants in the Fort McMurray area. Residents of Edmonton and Calgary raised concerns about smog and ground-level ozone from automobiles, as the transportation vehicle of choice. Participants in other locations expressed concern about possible toxic emissions from pulp mills and waste incinerators. Concerns were also noted about indoor air quality. These last two issues (toxic emissions and indoor air quality) are outside the scope of the Clean Air Strategy for Alberta which focuses on energy-related emissions. At some point a strategy to manage air quality in Alberta must be broadened to include emissions that arise from nonenergy-related sources.

Whatever the source, a priority in developing a clean air strategy is being able to address local problems effectively. Unless local problems are resolved, national and international commitments will lack credibility in the eyes of the public.

f) *There is a need for careful evaluation of proposals to reduce industrial emissions.*

While Alberta has the highest per capita emissions of carbon dioxide and nitrogen oxides in Canada, about one-half of these emissions relate to the production of energy. About three-quarters of the oil and gas produced is delivered to consumers in other parts of Canada or the United States; therefore, a substantial portion of Alberta's emissions are the result of supplying the energy needs of non-Alberta residents.

Industry submissions emphasized the need to reduce scientific uncertainties and use the best available science as the basis to define air quality problems. They stressed that specific solutions for local, regional or international air quality problems need to be developed on a focused and prioritized basis. They cautioned that costs could be high and that there are limited financial resources. Submissions also stressed that industry needs to know the rules under which they can operate.

While industry supports clean air, it cautioned that proposals to reduce emissions must recognize that Alberta industry operates in a national and international context. They stressed that establishing rules to reduce emissions, which increase costs for industry in Alberta relative to industry in other regions of Canada or in other countries where such rules do not apply, could result in transferring jobs out of Alberta with virtually no impact on global emissions.

Unilateral actions at a provincial or even national level will not contribute significantly to the global solution, and may create severe economic pressures on the competitiveness of industry in Alberta and the rest of Canada. Therefore, there is a need to cooperate with Canada and the international community while still recognizing Alberta's unique characteristics.

g) *New approaches in regulating emissions and air quality are needed.* Participants at regional sessions, and several of the written submissions, suggested the need to develop innovative approaches to the regulation of emissions. Specific reference was made to using market-based mechanisms and establishing regional airshed limits. As well, respondents proposed that air monitoring information be more readily available to the public and be presented in a more understandable way, such as in the form of indicators or indices on environmental and human health.

Given the apparent interest of Albertans in developing new approaches to managing air quality, the current program of developing a clean air strategy through involvement of all stakeholders provides an ideal opportunity to take a fresh look at existing and proposed regulatory mechanisms.

h) *There is a need to expand energy-efficiency audits.* Energy efficiency was recognized across the province as being a cost-effective means to reduce emissions. It is noteworthy that for more than 10 years, Alberta Energy has conducted energy-efficiency audits throughout the province for industrial, commercial and institutional facilities, upon request. Representatives from the program described their activities and results at the open houses and some of the public meetings. More than 1600 audits have been completed for facilities ranging from large industrial and commercial complexes to schools and hospitals, resulting in an average energy saving of 19 per cent. The program provides win/win solutions – saving money for the consumer and reducing emissions for the environment. This program appears to be a cost-effective medium for promoting efficiency and reducing energy use and emissions. Moreover, it provides government with an ideal means of demonstrating by example. It is a program that with expanded services, could provide an effective means to help Albertans further reduce energy end-use demand and emissions. As well, business opportunities could develop for Albertans in the energy efficiency field.

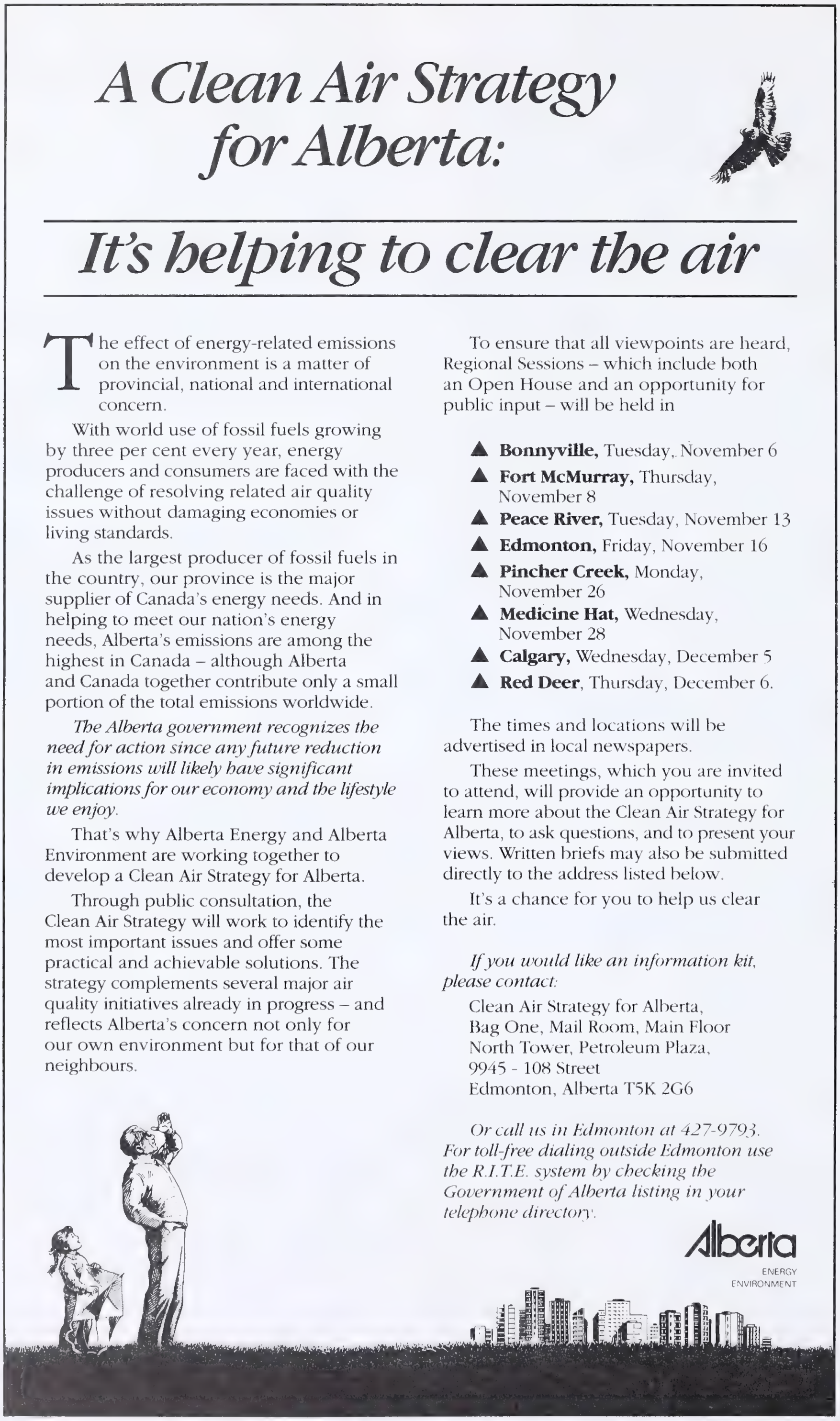
7. Conclusion

The regional sessions resulted in a broad range of recommendations that, if adopted, would reduce energy-related emissions. Most depend on action by the provincial government in such matters as establishing new and more restrictive standards, providing incentives to reduce emissions and imposing penalties for not reducing emissions. Many of the recommendations are dependent on industry using energy more efficiently in its various production processes and finding new approaches to reduce emissions. Other recommendations are reliant upon all Albertans using energy more efficiently as well as changing lifestyles.

Generally, however, the response of Albertans to these issues appears to be ambiguous if not ambivalent. The limited participation in the regional sessions suggests that only a small segment of society is seriously concerned about these issues. Those who did participate made it clear they want action to ensure we have clean air, and are asking the provincial government to do whatever is necessary to make that happen. On the other hand, while the public says they want a clean environment, there is great uncertainty whether the public overall understands the issues or is willing to pay the cost of doing things right and making the necessary lifestyle changes.

The regional sessions suggest the greatest challenge to implementing an effective clean air strategy is to ensure Albertans understand the required commitment and are willing to make the necessary changes.

Appendix A: Advertisements



A Clean Air Strategy for Alberta:

It's helping to clear the air

The effect of energy-related emissions on the environment is a matter of provincial, national and international concern.

With world use of fossil fuels growing by three per cent every year, energy producers and consumers are faced with the challenge of resolving related air quality issues without damaging economies or living standards.

As the largest producer of fossil fuels in the country, our province is the major supplier of Canada's energy needs. And in helping to meet our nation's energy needs, Alberta's emissions are among the highest in Canada – although Alberta and Canada together contribute only a small portion of the total emissions worldwide.

The Alberta government recognizes the need for action since any future reduction in emissions will likely have significant implications for our economy and the lifestyle we enjoy.

That's why Alberta Energy and Alberta Environment are working together to develop a Clean Air Strategy for Alberta.

Through public consultation, the Clean Air Strategy will work to identify the most important issues and offer some practical and achievable solutions. The strategy complements several major air quality initiatives already in progress – and reflects Alberta's concern not only for our own environment but for that of our neighbours.

To ensure that all viewpoints are heard, Regional Sessions – which include both an Open House and an opportunity for public input – will be held in

- ▲ **Bonnyville,** Tuesday, November 6
- ▲ **Fort McMurray,** Thursday, November 8
- ▲ **Peace River,** Tuesday, November 13
- ▲ **Edmonton,** Friday, November 16
- ▲ **Pincher Creek,** Monday, November 26
- ▲ **Medicine Hat,** Wednesday, November 28
- ▲ **Calgary,** Wednesday, December 5
- ▲ **Red Deer**, Thursday, December 6.

The times and locations will be advertised in local newspapers.

These meetings, which you are invited to attend, will provide an opportunity to learn more about the Clean Air Strategy for Alberta, to ask questions, and to present your views. Written briefs may also be submitted directly to the address listed below.

It's a chance for you to help us clear the air.

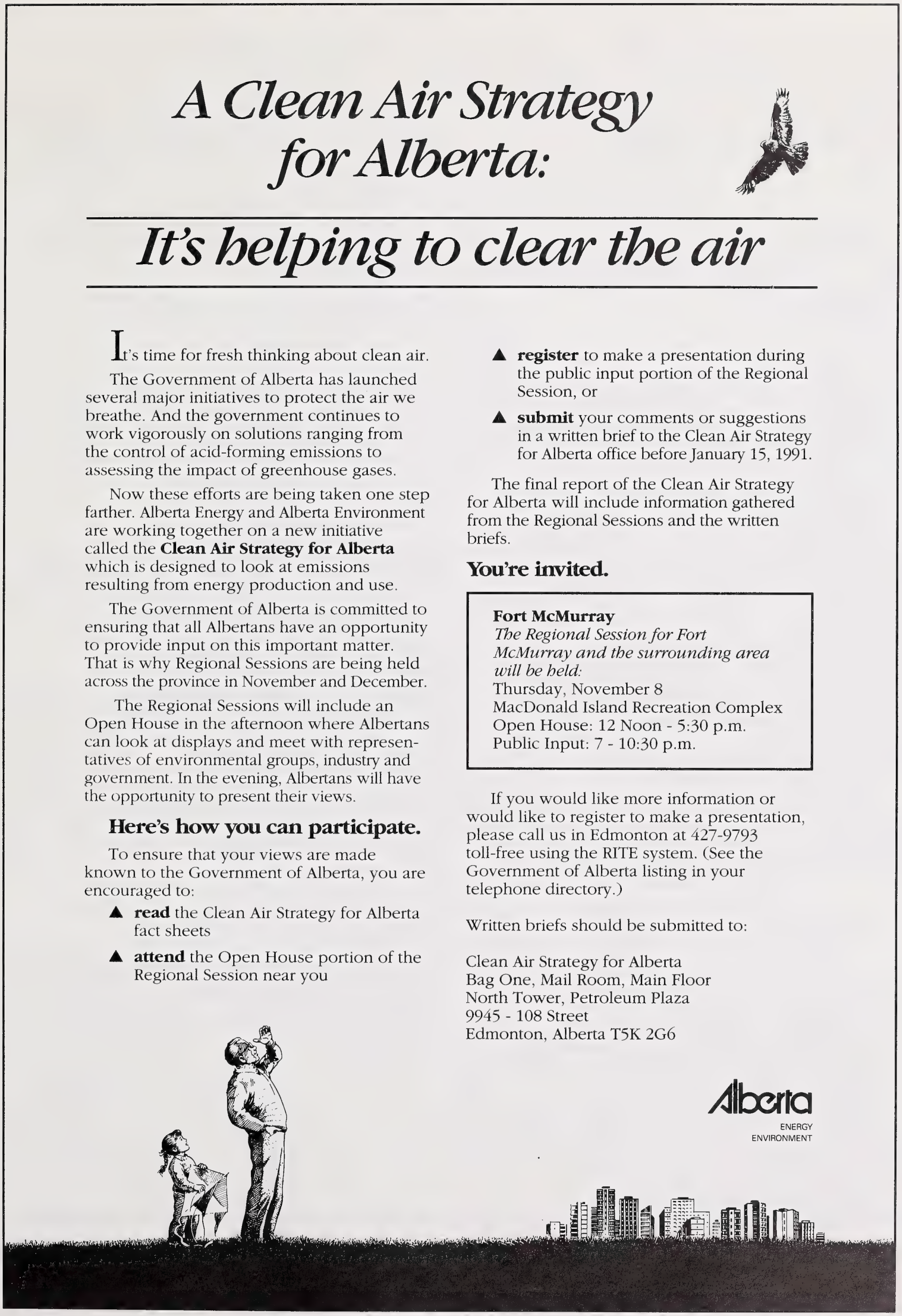
If you would like an information kit, please contact:

Clean Air Strategy for Alberta,
Bag One, Mail Room, Main Floor
North Tower, Petroleum Plaza,
9945 - 108 Street
Edmonton, Alberta T5K 2G6

Or call us in Edmonton at 427-9793. For toll-free dialing outside Edmonton use the R.I.T.E. system by checking the Government of Alberta listing in your telephone directory.

Alberta
ENERGY
ENVIRONMENT

Sample general advertisement



A Clean Air Strategy for Alberta:

It's helping to clear the air

It's time for fresh thinking about clean air.

The Government of Alberta has launched several major initiatives to protect the air we breathe. And the government continues to work vigorously on solutions ranging from the control of acid-forming emissions to assessing the impact of greenhouse gases.

Now these efforts are being taken one step farther. Alberta Energy and Alberta Environment are working together on a new initiative called the **Clean Air Strategy for Alberta** which is designed to look at emissions resulting from energy production and use.

The Government of Alberta is committed to ensuring that all Albertans have an opportunity to provide input on this important matter. That is why Regional Sessions are being held across the province in November and December.

The Regional Sessions will include an Open House in the afternoon where Albertans can look at displays and meet with representatives of environmental groups, industry and government. In the evening, Albertans will have the opportunity to present their views.

Here's how you can participate.

To ensure that your views are made known to the Government of Alberta, you are encouraged to:

- ▲ **read** the Clean Air Strategy for Alberta fact sheets
- ▲ **attend** the Open House portion of the Regional Session near you
- ▲ **register** to make a presentation during the public input portion of the Regional Session, or
- ▲ **submit** your comments or suggestions in a written brief to the Clean Air Strategy for Alberta office before January 15, 1991.

The final report of the Clean Air Strategy for Alberta will include information gathered from the Regional Sessions and the written briefs.

You're invited.

Fort McMurray
The Regional Session for Fort McMurray and the surrounding area will be held:
Thursday, November 8
MacDonald Island Recreation Complex
Open House: 12 Noon - 5:30 p.m.
Public Input: 7 - 10:30 p.m.

If you would like more information or would like to register to make a presentation, please call us in Edmonton at 427-9793 toll-free using the RITE system. (See the Government of Alberta listing in your telephone directory.)

Written briefs should be submitted to:

Clean Air Strategy for Alberta
Bag One, Mail Room, Main Floor
North Tower, Petroleum Plaza
9945 - 108 Street
Edmonton, Alberta T5K 2G6

Alberta
ENERGY
ENVIRONMENT

Sample specific advertisement

Appendix B: Open House Displays and Materials

Alberta Electric Utilities Planning Council

Display described EUPC, its commitment and future challenges.
Handouts: pamphlet on utilities planning.

Alberta Energy

Display described main program areas of the Energy Efficiency Branch.
Handouts: materials related to display with emphasis on residential energy conservation program; and energy-efficiency booklets.

Alberta Environment

Display described greenhouse effect, acid deposition and the ozone layer.
Handouts: materials relating to display including fact sheets and the *Environment Views* publication.

Alberta Environmental Network

Display described AEN, membership services and important issues and also video on bicycles.
Handouts: Friends of the Earth global warming kit and newsletter.

Alberta Public Health Association
Display described APHA, its objectives and membership.
Handouts: general information on the association.

Canadian Gas Association

Display described the role of natural gas in the environment.
Handouts: pamphlets on the role of natural gas in the environment and consumer energy efficiency.

Canadian Petroleum Association/Independent Petroleum Association of Canada

Display described the oil industry air quality programs of CPA and IPAC.
Handouts: pamphlets on Canada's petroleum resources, water and waste management and other environmental issues, and industry response to global warming, acid deposition and smog.

Canadian Urban Transit Association, (Local) Transit Authority

Display was the banner of CUTA.
Handouts: materials from local transit authorities on related clean air issues, as well as transit promotion.

Clean Air Strategy for Alberta

Display illustrated clean air and showed photos specific to location where each regional session was held.
Handouts: information on the process and fact sheets on energy-related air quality issues and options.

Coal Association of Canada

Display described clean coal technology and the coal industry's current role in Alberta.
Handouts: materials on Canadian coal mining and a poster on Canadian coal facts.

Energy Resources Conservation Board

Display described clean air regulations for the energy industry and had a computer game called *House Energy Audit* from the Energeum. Handouts: information on ERCB and its role, and student education kits on energy and the environment.

Propane Gas Association

Display described propane gas as an alternative fuel.
Handouts: information on conversion of vehicles and general information about propane gas.

Small Power Producers Association

Display described energy alternatives, such as wind and solar power.
Handouts: materials on benefits and full-costing of renewable energy.

Southwest Alberta Renewable Energy Project

Display described a project on renewable energy technology.

University of Calgary, Department of Environmental Design

Display described alternative energy and indoor air quality in buildings.
Handouts: information on energy-efficient building designs.

Appendix C: Attendance at Regional Sessions

LOCATION	SESSION	TOTAL	PUBLIC	PRESS	SCHOOLS	SCHOOLS REPRESENTED	OTHER COMMUNITIES
Bonnyville (Nov. 6)	OPEN HOUSE	64	11	1	52	Duclos, Ardmore, Bonnyville	Fort Kent, Ardmore
	PUBLIC MEETING	9	7	2			
	TOTAL	73					
Fort McMurray (Nov. 8)	OPEN HOUSE	45	9	2	34	Westview	
	PUBLIC MEETING	10	8	2			
	TOTAL	55					
Peace River (Nov. 13)	OPEN HOUSE	13	12	1			Hento Creek, Valleyview, Grimshaw, Grande Prairie, Woking
	PUBLIC MEETING	15	13	2			
	TOTAL	28					
Edmonton (Nov. 16)	OPEN HOUSE	69	60		9	Spruce Grove	Gibbon, Bragg Creek, Calgary, Camrose, Drayton Valley, Edmonton, Fox Creek, Ft. Saskatchewan, Hinton, Red Deer, Sherwood Park, Smoky Lake, Spruce Grove, Stalbert, Stony Plain, Swan Hills, Tomahawk
	PUBLIC MEETING	40	39	1			
	TOTAL	109					
Medicine Hat (Nov. 28)	OPEN HOUSE	37	31	2	4		Calgary, Irvine, Redcliff
	PUBLIC MEETING	22	21	1			
	TOTAL	59					
Calgary (Dec. 5)	OPEN HOUSE	234	66	5	163	Assumption, Father Scollen, John Ware, Alternative, Elboya, Strathmore	Carseland, Gleichen, Ottawa, Priddis, Strathmore
	PUBLIC MEETING	49	46	3			
	TOTAL	283					
Red Deer (Dec. 6)	OPEN HOUSE	130	20	1	109	St. Patricks, Joseph Welsh, West Park	Hanna, Innisfail, Rocky Mountain House
	PUBLIC MEETING	45	29	1	15		
	TOTAL	175					
Pincher Creek (Dec. 13)	OPEN HOUSE	53	13	2	38	Pincher Creek, M.H.C.S., W.R. Meyers	Brocket, Cowley, Coleman, Hillspring, Hillcrest, Lundbreck, Peigan Reserve, Taber, Twin Butte, Waterton Park
	PUBLIC MEETING	20	16		4		
	TOTAL	73					
All Locations:	OPEN HOUSE	645	222	14	409		
	PUBLIC MEETING	210	179	12	19		
	TOTAL	855	401	26	428		

Appendix D: Oral Presentations

FORT McMURRAY, NOVEMBER 8, 1990

- Patricia McInnes,
  - Environmental Association
- Jim Rogers,
  - Alberta Trapper's Association
- Don Klym,
  - Suncor Inc. Oil Sands Group
- Bruce Friesen,
  - Syncrude Canada Limited
- Gordon Shaw,
  - City of Fort McMurray
- Jim Rogers

PEACE RIVER, NOVEMBER 13, 1990

- John Sheehan,
  - Friends of the Peace
- Claus [surname unavailable]
- Roxanne Woeds

EDMONTON, NOVEMBER 16, 1990

- Roger Silcox,
  - Clean Air Synthetic Lubricants
- Craig Schneider
- Hans Weissenborn,
  - Consumers Association of Canada
- Lorraine Vetsch/Mitch Bronaugh,
  - Friends of the North
- Tim Nolt
- George Marshall,
  - Canadian Chemical Producers Association
- Hank Hollowaychuk

MEDICINE HAT, NOVEMBER 28, 1990

- Tom Pekoe,
  - Southeast Coalition for Environment
- Gary Drefs,
  - Canadian Chemical Producers Association and Novacor Chemicals Ltd.
- Veronica Swan,
  - Grassland Naturalists Society
- Dr. Doug Shepherd

CALGARY, DECEMBER 5, 1990

- Wayne Barkauskas,
  - University of Calgary, Environmental Law Group
- Peter Proudlock,
  - CH/4 International Ltd.
- Eugene Gawor,
  - E.E.E. Services
- Judy Bennett,
  - Athabasca Tribal Corporation
- Jorg Ostrowski,
  - Alternative Energy
- Dr. Robin Basu,
  - University of Calgary, Department of Physics
- Dr. Niels Damgaard,
  - Alberta Fish and Game Association
- Alderman Sharon Fisk,
  - City of Calgary
- Herb Jacobsen,
  - Adequate Resources
- Hugh Jones
- Ed Wolf

RED DEER, DECEMBER 6, 1990

- Joseph Welsh School Students
- Bill Stephenson,
  - Alberta Gas Ethylene Company Ltd.
- Loretta Smith/Teresa Neuman,
  - Citizens Action Group on the Environment
- Unidentified speaker
- Elmer Kure

PINCHER CREEK, DECEMBER 13, 1990

- W.R. Meyer High School Students, Taber
- Caroline Yellow Horn,
  - North Peigan-Blackfoot Confederacy
- Sandra Petrich,
  - Crowsnest Pass Environmental Society
- Cathy Haslam,
  - Municipal District of Crowsnest Pass
- Larry Frith
- Art Davis

Total Number of Oral Presentations: 42

Appendix E: Written Submissions

CONCERNED CITIZENS (18)

- * Mitch Bronaugh, Edmonton
- Barbara Collier, Bon Accord
- Daniel Garsonnin, St. Albert
- * Eugene Gawor, Calgary
- Derek Gomez, Edmonton
- D. Gordon, Fort McMurray
- Mary Helensky
- Allan Johnstone, Grande Prairie
- Hugh Jones, Calgary
- Tony & Penny Marshall, Aldersyde
- Susan E. Nelson, Lundbreck
- Jim Rennie, Calgary
- * Craig Schneider, Edmonton
- * Doug Shepherd, Medicine Hat
- Dave Sheppard, Pincher Creek
- * E. Stoyke, Edmonton
- Stoyke Family, Edmonton
- Mark Wayne, Calgary

GOVERNMENT (9)

- Alberta Liberal Party
- Calgary Regional Planning Commission
- * City of Calgary
- City of Edmonton
- City of Red Deer
- Crowsnest Pass Economic Development Board
- * Municipality of Crowsnest Pass
- Town of Bonnyville
- Town of Pincher Creek

INDUSTRY (9)

- Alberta Forest Products Association
- * Canadian Chemical Producers' Association
- Canadian Oxygenated Fuels Association
- Canadian Petroleum Association
- Canadian Western Natural Gas Co. Ltd.
- * CH4 International Ltd.
- Coal Association of Canada
- Electric Utilities Planning Council
- Esso Resources Canada Limited
- * Novacor Chemicals Ltd.

PUBLIC INTEREST ORGANIZATIONS (13)

- * Alberta Fish and Game Association
- Allergy Information Association
- * Athabasca Tribal Corporation
- Calgary Chamber of Commerce
- Canadian Union of Public Employees
- Caroline Gas Field Advisory Board
- Coaldale Ecology Club
- Crowsnest Pass Chamber of Commerce
- EcoCity Society
- * Environmental Law Group, University of Calgary
- * Grassland Naturalists Society
- Health Unit Association of Alberta, Northern Region
- * North Peigan - Blackfoot Confedefacy

SCHOOLS (46 submissions from 6 schools)

- Banff Elementary School
  - Grade 4A Students, Banff
- Bev Facey Composite High School
  - Grade 10, 11, 12 Students, Strathcona
- Dewberry School
  - Grade 9 Students, Dewberry
- East Edmonton Christian School
  - Grade 5 Students, Edmonton
- Lorne Akins Junior High School
  - Leah C. Bertsch, St. Albert
- *W.R. Meyer High School
  - Taber, Alberta

Total Number of Written Submissions: 96

* also gave oral presentation

Appendix F: Air Quality Problems Identified

Air Quality Problem	No. of Submissions	Nature of Problem	Emissions Causing Problem	Source of Emissions
Greenhouse Effect	52	Future global warming.	Carbon Dioxide	Oil sands plants Electrical generating plants Motor vehicles
			Methane	Coal mining Oil & gas production Landfills Animal wastes
Acid Deposition	22	Effects on human health, forests and lakes.	Sulphur Dioxide Nitrogen Oxides	Oil sands plants Sour gas plants Electrical generating plants Pulp mills
Smog in Cities	18	Odours, haze and negative impacts on health.	Nitrogen Oxides Volatile Organic Compounds	Motor Vehicles
Ozone Depletion	16	Future global warming. Effects on human health and ecosystems.	Chlorofluorocarbons and Halons	Refrigeration Aerosols Solvents Foam
Air Toxics	10	Effect on human health.	Dioxins Furans Chlorinated organics	Incinerators Pulp mills Asphalt plants
Indoor Air Quality	5	Effect on human health.		

Appendix G: Questionnaire and Responses

(Numbers of responses to each category and question are in parenthesis. Suggestions are in categories and listed on the following page.)

CLEAN AIR STRATEGY FOR ALBERTA
REGIONAL SESSIONS QUESTIONNAIRE

1. **How high a priority is a clean air for Alberta?** ***(Please check one)***

(46)	Top priority.	(13)	A medium priority.
(36)	One of the top priorities.	(6)	Don't know.

2. **How important are each of the clean air issues?** ***(Please check one per row)***

	Not Important	Slightly	Moderately	Very	Extremely Important
• Acid Deposition (Acid Rain)	(1)	(7)	(18)	(36)	(41)
• Greenhouse Effect (Climate Change)	(1)	(3)	(15)	(25)	(59)
• Smog	(1)	(7)	(24)	(32)	(39)
• Stratospheric Ozone Depletion	(1)	(4)	(10)	(15)	(73)

3. **How would you rate each of the following approaches to ensure clean air for Alberta?** ***(Please check one per row)***

	Don't Support	Slightly	Moderately	Highly Support
• Encourage voluntary action through more information and education.	(5)	(6)	(28)	(63)
• Use taxes, economic incentives (subsidies, emissions trading, tax credits,) and economic penalties.	(11)	(12)	(34)	(45)
• Make measures mandatory by more strictly enforcing existing laws and by passing new laws.	(4)	(9)	(27)	(61)
• Encourage measures that are economic in their own right, such as energy efficiency.	(3)	(3)	(22)	(74)
• Encourage more research into the science and understanding of air quality.	(1)	(7)	(24)	(70)

4. **Do you have any other comments that you would like to be considered in developing a Clean Air Strategy for Alberta?** ***(Use over if necessary)***

(Categories of comments are on the following page.)

Transportation:

- Consider use of electric vehicles.
- Change cars from gas to other fuels.
- Make cars that run on garbage or water.
- Alternate transportation fuels: eg., propane, natural gas, methane.
- Make it difficult for people to drive a car with only one person in it.
- As in Los Angeles, some lanes for car pools only.
- A law for car pools on Tuesdays and have car pool lanes.
- Have car inspections before being able to renew your licence like in early 1970's.
- Have cars licenced to drive in sections, if plate not licensed for section you are driving in you will be fined.
- Restrictions on use of automobiles.
- Plan infrastructure for public transport now.
- Land-use planning with thought to traffic flow and public transit. Also, efficient planning of housing developments.
- Make laws to enforce less car driving.

Emissions:

- Increase buy-back rates paid to independent power producers to encourage decentralized co-generation and recover of Alberta's abundant waste/flared natural gas, decreasing our dependence on coal-fired power generation.
- To reduce emissions, why not support a lower emission producing industry.
- Support a carbon tax.
- Consideration must be given as to how industry is to pay for reduction as Alberta is an energy producer, higher prices or net backs to the producer must be allowed for. There is no doubt that we must, as a world, reduce emissions of GH gases but we cannot stop industry to do so.
- Get agreement that CO_2 etc. from energy production is responsibility of ultimate consumer.
- Pulp mills, mining, coal-fired electricity companies, oil companies should face very large fines if they break the clean air act.
- Enforce stronger laws on the large companies that produce emissions.

Alternate Energy Sources:

- Seek and use alternate energy sources, such as sun and wind rather than non-renewables.
- Promote use of less polluting fuel, namely propane.
- Phase out fossil fuels.
- Develop technology which makes use of renewable energy sources.
- Increase availability of passive power systems, increase studying of systems for heating and electricity.
- Using solar energy in Drumheller and Brooks.

Business/Industry/Government:

- Business will follow only what is economically suited to them, we cannot have it on a voluntary action. Mandatory regulation must be set and policed.
- When industry promises to set up a new operation all they have to do is promise a few new jobs and government gives out concessions, grants etc. Why not spend that money creating jobs for people to monitor, enforce, educate and whatever else needs to be done to clean up on environmental mess.
- People and companies that are forced to, will comply.
- People and companies that are persuaded to comply will exceed requirements.
- Let industry, government and the public jointly work together to improve our performance.
- Reform ERCB - they approve all pollution.
- Yes we should be looking to approaches in increasing industry and civilian peer pressure to help reduce air emissions.

Education/Funding:

- Attempts to hold public meetings are commendable, even though interest does not seem too great. A systematic approach to maintain clean air in Alberta is necessary.
- Need to seriously consider how much people are willing to pay.
- A dedicated approach to educating the public on what they or we can do.
- Provide more funding for the government agencies involved and encourage more research and inter-agency cooperation.
- Education is critical.
- Economic and environment cost should be paired.
- Use GST for Alberta Clean Air instead of other things.
- More information in schools, use GST to support costs.
- A combined approach is required. It can be resolved by a single model or approach, but it requires a cooperative approach including education and regulation. It has to work to make the healthy environmental friendly choice the easiest.

Pollution/Litter:

- Do not make as many pamphlets, not necessary, more displays instead.
- Send something to our school instead of styrofoam to our cafeteria.
- Ban ...(fast food chains)..., bad food, bad for environment.
- Enforce recycling and use of recycled products.
- If you are here to help pollution, so why do you have over two pollution-making vans.
- Why do you use plastic when this is a strategy?
- To stop pollution make laws for littering.
- Commitment would be more credible if handouts were on recycled paper.
- I would support a pollution tax on any combustion of fossil fuels.
- Make sure that there are strict penalties for pollution.
- Make laws and penalties stricter for industries.
- Doing the minimum amount necessary is not enough. It is far better to enforce more regulations to encourage clean air than less - because severe mistakes in pollution are more difficult to correct then erring on the side of caution.

Miscellaneous:

- Test kits so that each house owner can see where their house is environmentally unfriendly.
- Follow leaders in the world in efficiency, Netherlands, Sweden, Japan, Western Europe.
- Develop National Parks and more development of City Parks.
- The strategy must be taken over a long time-period and integrate into world activities.
- Get going.
- Compared to Eastern North America our air is clean. We should keep it that way but not by adopting measures that will cost more than the benefits realized.
- Increase carbon absorbtion by forests.
- Good display.
- Hurry up and implement all as top priority.
- See presentation for hints.
- An overall environmental strategy is important not just one of the problems.
- Air should be monitored daily and published daily in the local newspapers.
- Oil sands plants should be monitored with closer testing.

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